August 5, 2003
Application No. 09/848,904

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (currently amended): A method for making silica, comprising:

delivering a silica precursor comprising [[a]] at least one perfluorinated carbon group (R_F) having a carbon atom bonded directly or through an intermediate oxygen atom to silicon to a conversion site; and

passing the silica precursor through a conversion flame to produce silica soot.

Claim 2 (currently amended): The method of claim 1, wherein ~~the perfluorinated group~~ R_F is selected from [[a]] the group consisting of perfluorinated alkyl, alkenyl, ~~alkoxy,~~ and aryl groups.

Claim 3 (currently amended): The method of claim 1, wherein the silica precursor is represented by the general formula $Si(OR_F)_xF_{4-x}$, where ~~R_F represents the perfluorinated group and~~ x is an integer ranging from 1 to 4.

Claim 4 (currently amended): The method of claim 1, wherein the silica precursor further comprises at least one substituent selected from [[a]] the group consisting of fluorine and chlorine.

Claims 5 (currently amended): The method of claim 1, wherein the silica precursor is represented by the general formula $SiCl_xF_y(R_F)_z$, where x, y, and z are integers, and the sum of x, y, and z is equal to 4~~, and R_F represents the perfluorinated group~~.

Claim 6 (currently amended): The method of claim 5, wherein R_F comprises at least one substituent selected from [[a]] the group consisting of chlorine and fluorine.

Claim 7 (currently amended): The method of claim 5, wherein ~~the perfluorinated group~~ R_F comprises a group selected from [[a]] the group consisting of perfluorinated alkyl, alkenyl, ~~alkoxy,~~ and aryl groups.

Claim 8 (currently amended): The method of claim 1, wherein the silica precursor is represented by the general formula $Si(R_F)_xF_{4-x}$, where ~~R_F represents the perfluorinated group and~~ x is an integer ranging from 1 to 4.

Claim 9 (currently amended): The method of claim 5, wherein ~~the perfluorinated group~~ R_F comprises a group selected from [[a]] the group consisting of perfluorinated alkyl, alkenyl, ~~alkoxy,~~ and aryl groups.

Claim 10 (original): The method of claim 1, wherein the silica precursor is delivered to the conversion site in vapor form.

Claim 11 (original): The method of claim 10, wherein the silica precursor is delivered to the conversion site in a gas stream comprising an inert gas.

Claim 12 (currently amended): The method of claim 1, wherein a fuel combusted to produce the flame comprises one selected from [[a]] the group consisting of CO, $(CN)_2$, $(NCO)_2$, and combinations thereof.

Claim 13 (currently amended): The method of claim 1, further comprising delivering to the conversion site a compound capable of being converted to an oxide of at least one member of [[a]] the group consisting of B, Al, Ge, Sn, Ti, P, Se, Er, S, Ca, Ba, Y, Yb, Ta, La, Sb, and Bi.

Claim 14 (original): The method of claim 1, further comprising depositing the silica soot on a deposition surface.

Claim 15 (original): The method of claim 14, further comprising consolidating the silica soot into glass.

Claim 16 (original): The method of claim 15, wherein the deposition surface is provided by a rotating mandrel.

Claim 17 (original): The method of claim 16, further comprising drawing the glass into a core cane.

Claim 18 (cancelled)

Claim 19 (currently amended): A method for making fused silica, comprising:

delivering a silica precursor comprising [[a]] at least one perfluorinated carbon group having a carbon atom bonded directly or through an intermediate oxygen atom to silicon to a conversion site;

passing the silica precursor through a conversion flame to produce silica soot; and

depositing the silica soot onto a deposition surface, wherein the silica soot is immediately consolidated into glass.

Claim 20 (currently amended): The method of claim 19, wherein the perfluorinated group is selected from [[a]] the group consisting of perfluorinated alkyl, alkenyl, ~~alkoxy,~~ and aryl groups.

Claim 21 (currently amended): The method of claim 19, wherein the silica precursor is represented by the general formula $Si(OR_F)_xF_{4-x}$, where ~~R_F represents the perfluorinated group and~~ x is an integer ranging from 1 to 4.

Claim 22 (currently amended): The method of claim 19, wherein the silica precursor further comprises at least one substituent selected from [[a]] the group consisting of fluorine and chlorine.

Claims 23 (currently amended): The method of claim 19, wherein the silica precursor is represented by the general formula $SiCl_xF_y(R_F)_z$, where x, y, and z are integers, and the sum of x, y, and z is equal to ~~4, and R_F represents the perfluorinated group~~.

Claim 24 (currently amended): The method of claim 23, wherein R_F comprises at least one substituent selected from [[a]] the group consisting of chlorine and fluorine.

Claim 25 (currently amended): The method of claim 23, wherein ~~the perfluorinated group~~ (R_F) comprises a group selected from [[a]] the group consisting of perfluorinated alkyl, alkenyl, ~~alkoxy,~~ and aryl groups.

Claim 26 (currently amended): The method of claim 19, wherein the silica precursor is represented by the general formula $Si(R_F)_xF_{4-x}$, where ~~R_F represents the perfluorinated group and~~ x is an integer ranging from 1 to 4.

Claim 27 (currently amended): The method of claim 26, wherein ~~the perfluorinated group~~ (R_F) selected from [[a]] the group consisting of perfluorinated alkyl, alkenyl, ~~alkoxy,~~ and aryl groups.

Claim 28 (currently amended): The method of claim 19, wherein a fuel combusted to produce the flame comprises one selected from [[a]] the group consisting of CO, $(CN)_2$, $(NCO)_2$, and combinations thereof.

Claim 29 (currently amended): A method for making silica, comprising:

° delivering a silica precursor comprising ~~a chloro derivative~~ at least one perhalogenated carbon group (R_Z) having a carbon atom bonded directly or through an intermediate oxygen atom to silicon to a conversion site; and

passing the silica precursor through a flame to produce silica soot.

Claim 30 (cancelled)

Claim 31 (currently amended) The method of claim 29, wherein the silica precursor ~~comprising a chloro derivative which~~ has ~~the~~ a general formula selected from [[a]] the group consisting of [[$S_I(R_F)_4$ and $S_I(OR_F)_4$]] $Si(R_Z)_4$ and $Si(OR_Z)_4$.

Claim 32 (cancelled)

Claim 33 (cancelled)

Claim 34 (new) The method of claim 1, wherein R_F is a perfluorinated alkyl group having carbon atoms ranging from 1 to 5, where all valences except for C-C, Si-C, or C-O linkages are satisfied by fluorine.

Claim 35 (new) The method of claim 31, wherein R_z is a perhalogenated alkyl group having carbon atoms ranging from 1 to 5, where all valences except for C-C, Si-C, or C-O linkages are satisfied by halogens.